

Montana Teen Driver Education and Training

Module 6.2

Effects of Alcohol and Other Drugs on the Driving Task

Making Life-Saving Decisions

Drinking, Drugs and Driving

Responsibility and Risk Management

- Brain – under construction
- Effects on brain
- Effects on body
- Alcohol, BAC and elimination
- Other drugs
- Effect of alcohol and other drugs on the driver
- DUI-related crashes in Montana
- Prevent impaired drivers on the road



What are the consequences of driving under the influence of alcohol and other drugs?



Different drugs do different things.

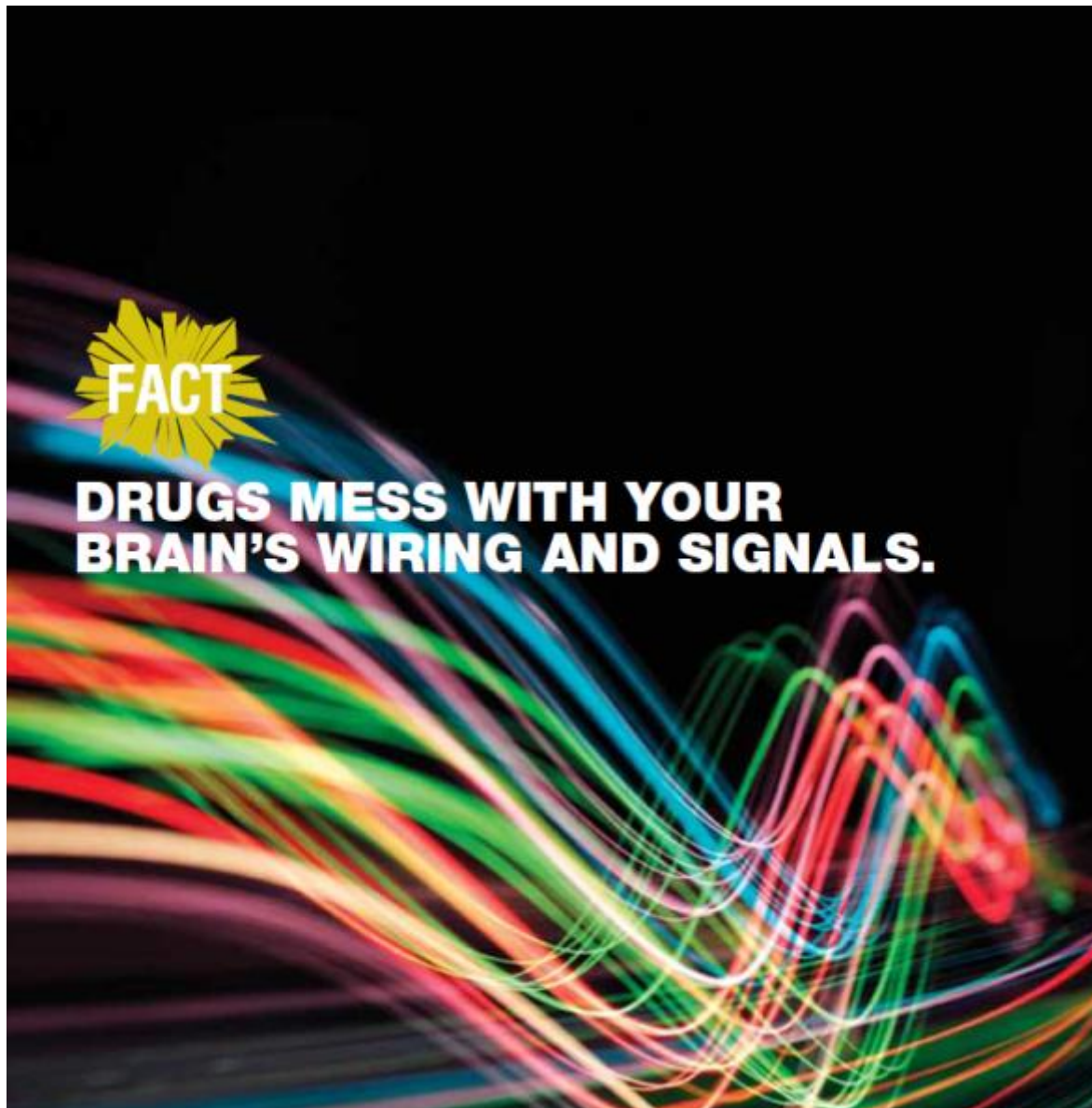
But *all* chemicals affect the brain—
that's why drugs make you feel high, low,
speeded up, slowed down,
or see things that aren't there.
They *all* affect your driving.





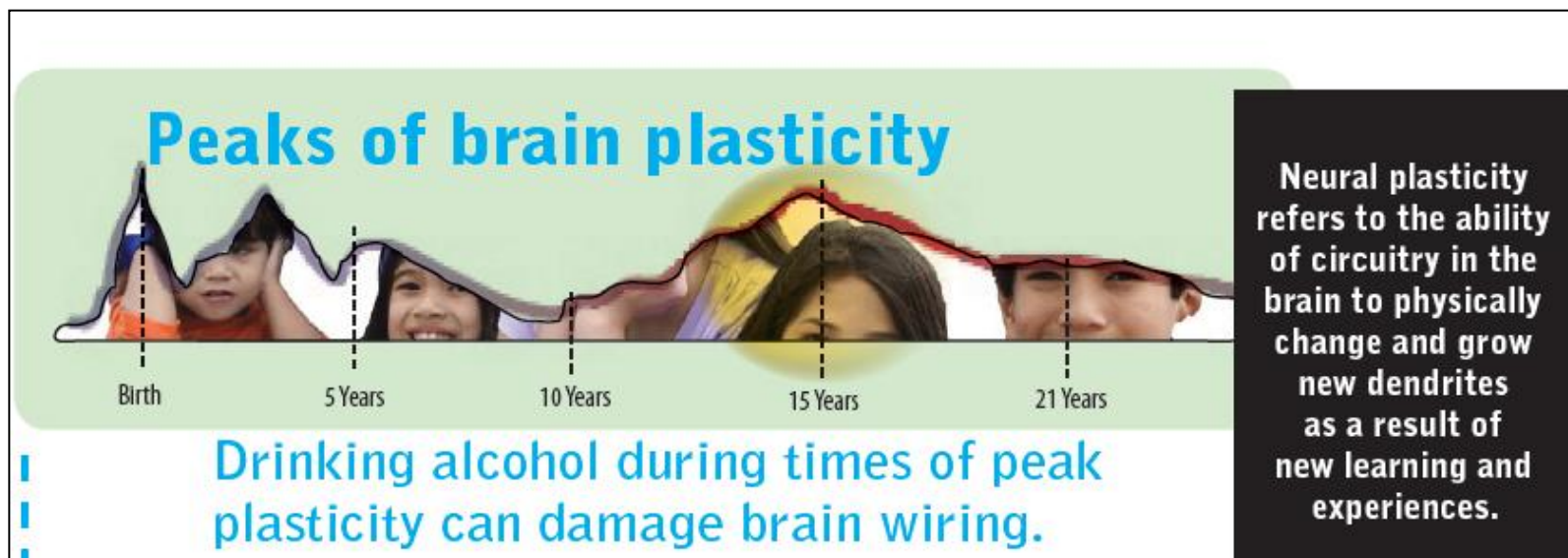
You know
drugs make
you FUZZY, but
what do drugs
do to your
brain?

Shatter the Myths NIDA 2011 Drug Facts - <http://teens.drugabuse.gov>



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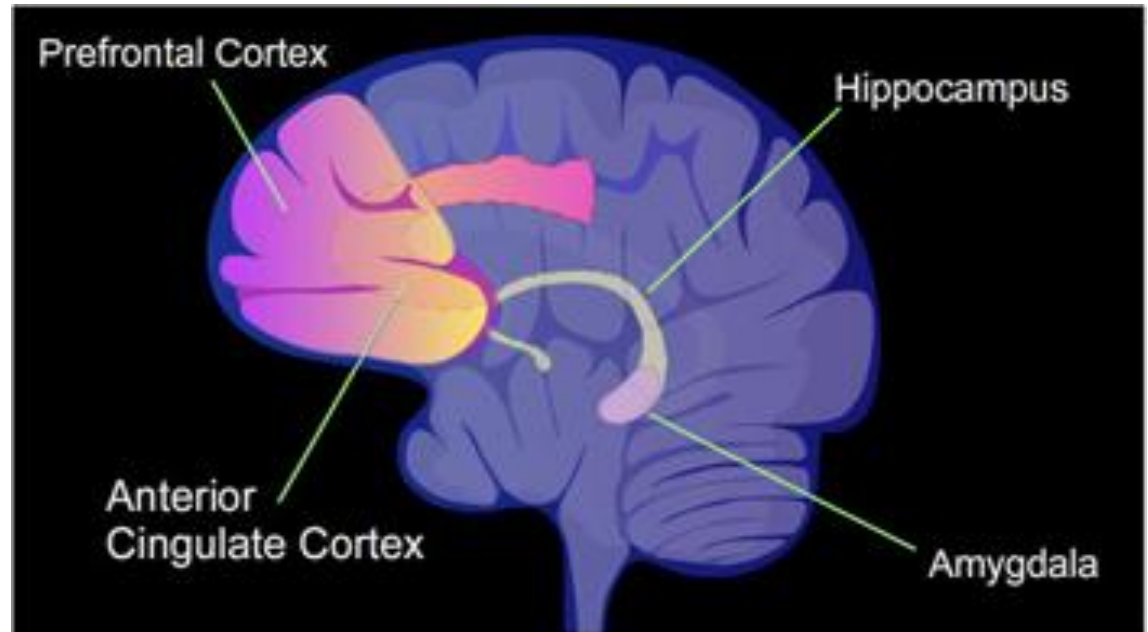
The adolescent brain is under construction



Your One and Only Brain

Prefrontal Cortex is responsible for executive functioning

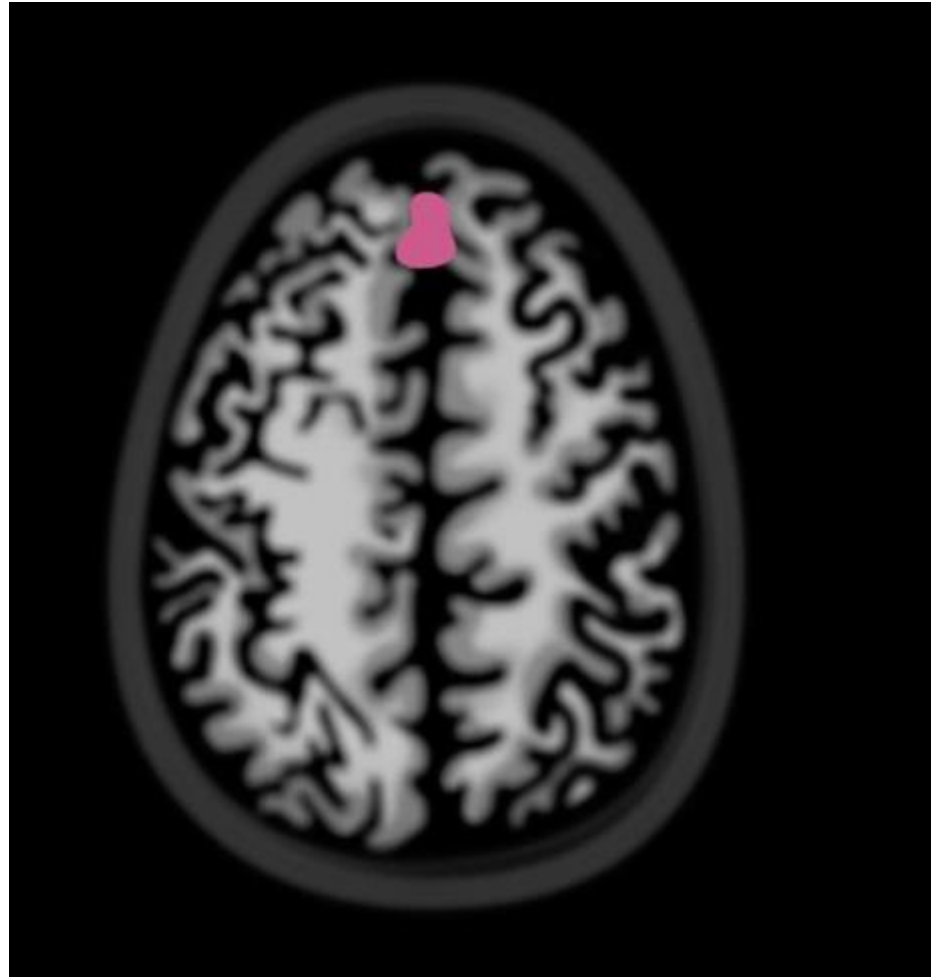
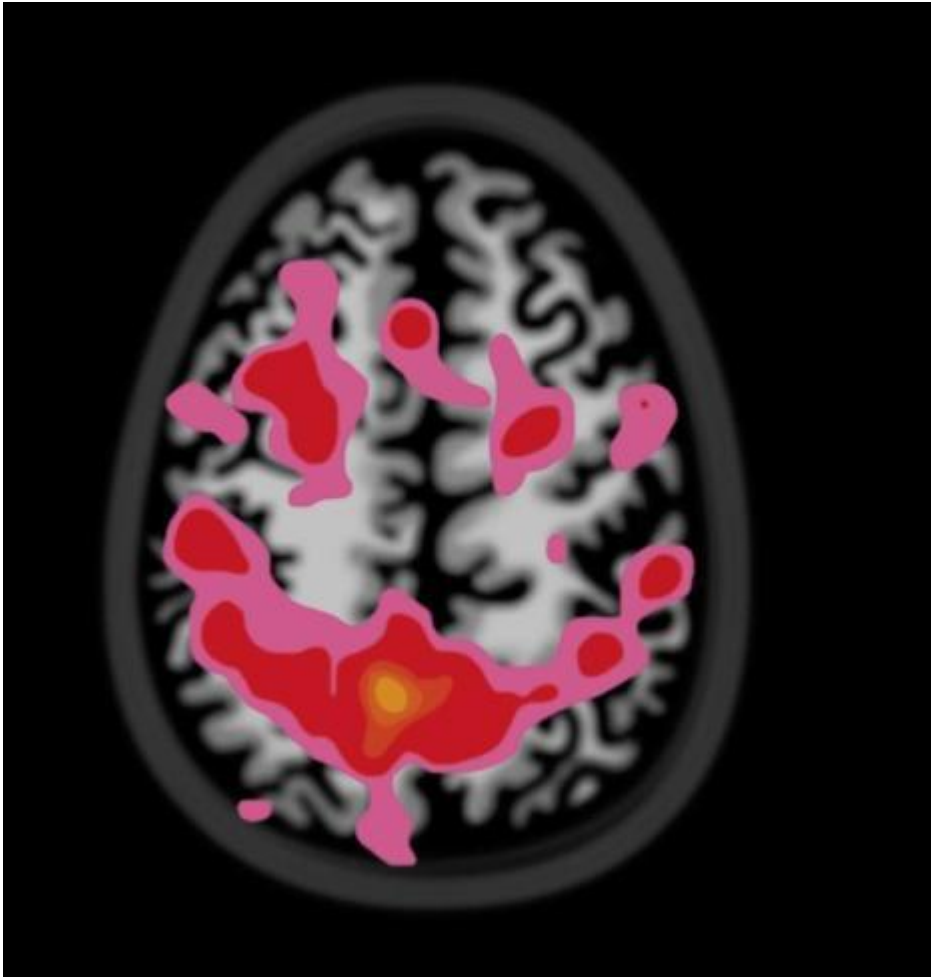
- Selective attention
- Decision-making
- Self-regulation
- Judgment
- Planning



Prefrontal Cortex still developing beyond age 20

15-year-old Non-Drinker

15-year-old Heavy Drinker



Pink areas indicate brain activity during memory task
Positron emission tomography - PET Scan brain images

Drinking

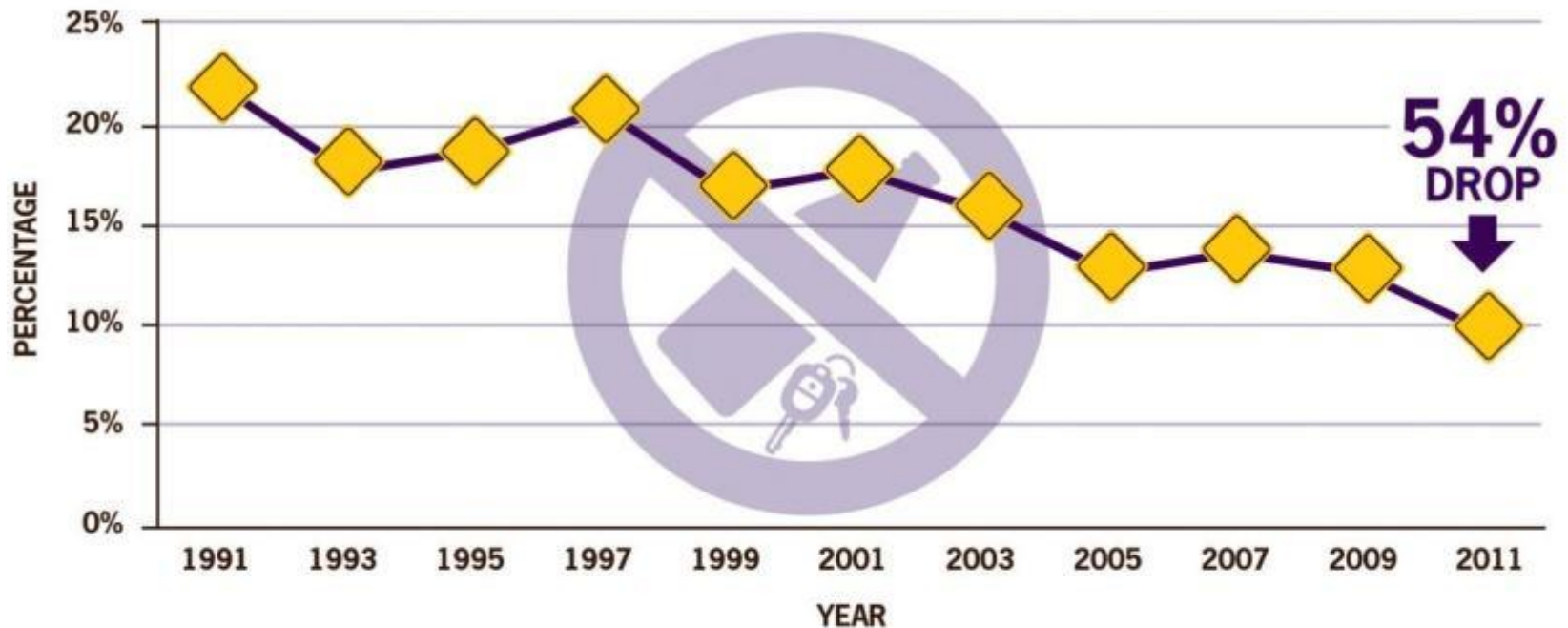
and driving can add up to tragic endings.



In the U.S., about 5,000 people under age 21 die each year from injuries caused by underage drinking, nearly 40 percent (1,900) in car crashes

Teen Drinking and Driving

The percentage of teens in high school, aged 16 or older, who drink and drive has decreased by more than half since 1991.

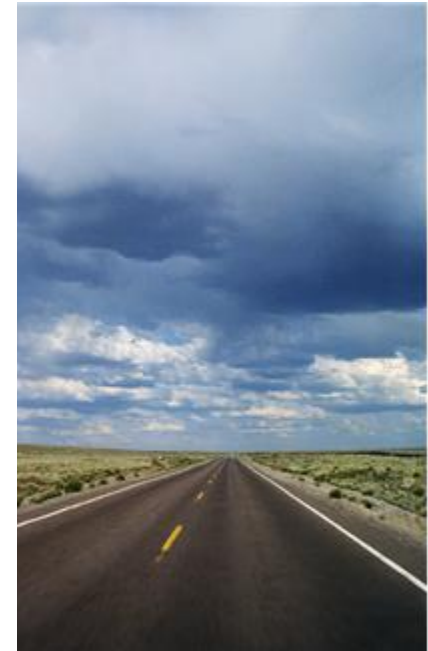


Source: CDC Vital Signs, 2012. www.cdc.gov/vitalsigns.

Most teens aren't drinking alcohol.

Research shows that 71 % of people 12-20 haven't had a drink in the past month.

Why do people drink alcoholic beverages?



The Drinking Culture

- Quench thirst
- Get drunk (binge drinking)
- Enjoy a social setting
- As part of a religious or traditional ceremony
- Custom
- Other?



CRUNCHING THE NUMBERS

WHISKEY 80 Proof

1 oz.

0.40

0.40 ounces of ethyl alcohol



BEER 4.5%

12 oz.

0.045

0.54 ounces of ethyl alcohol



WINE COOLER 5.0%

12 oz.

0.05

0.60 ounces of ethyl alcohol



MARGARITA

Tequila 80 Proof

Triple Sec 60 Proof

1.5 oz.

0.4

0.5 oz.

0.3


0.6 + 0.15 = 0.75
ounces of ethyl alcohol



MARGARITA	=	88% more alcohol	than a shot of whiskey
WINE COOLER	=	50% more alcohol	than a shot of whiskey
BEER	=	35% more alcohol	than a shot of whiskey

Some likely driving impairments

<http://www.cdc.gov/vitalsigns/drinkinganddriving>

Blood Alcohol Concentration (BAC) Levels	.15% About 7 beers		<ul style="list-style-type: none">• Serious difficulty controlling the car and focusing on driving
	.10% About 5 beers		<ul style="list-style-type: none">• Markedly slowed reaction time• Difficulty staying in lane and braking when needed
	.08% About 4 beers		<ul style="list-style-type: none">• Trouble controlling speed• Difficulty processing information and reasoning
	.05% About 3 beers		<ul style="list-style-type: none">• Reduced coordination and ability to track moving objects• Difficulty steering
	.02% About 2 beers		<ul style="list-style-type: none">• Loss of judgment• Trouble doing two tasks at the same time

Binge Drinking

4 drinks for a woman, 5 for a man*



* Centers for Disease Control (CDC)

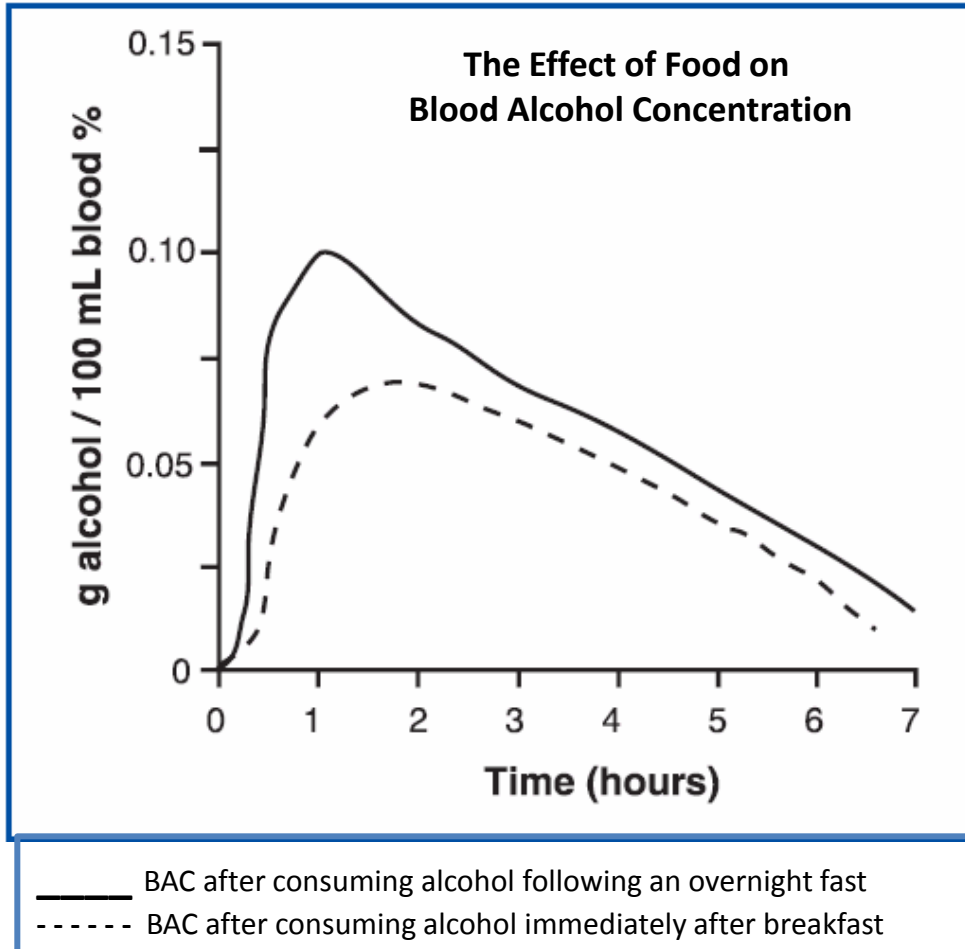


At a party you notice
someone passed out
on the floor.

What would you do?

Why?

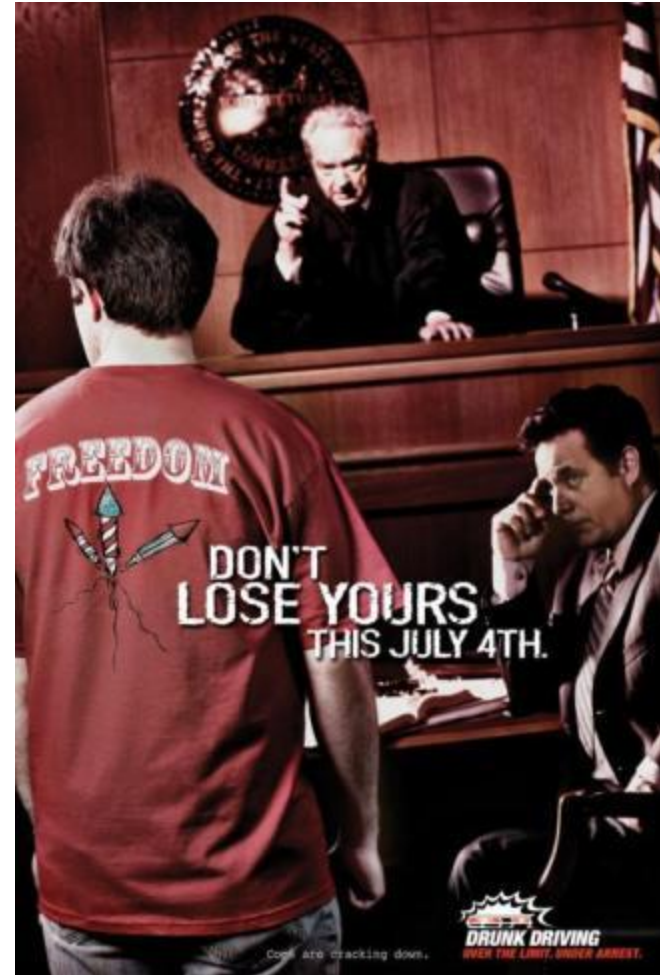
Elimination Time After Drinking



Concentration of alcohol in the breath and urine mirrors the concentration in the blood.

Breathalyzers can detect, measure and calculate a person's blood alcohol concentration (BAC).

MIP and DUI Consequences



Make Safe Decisions

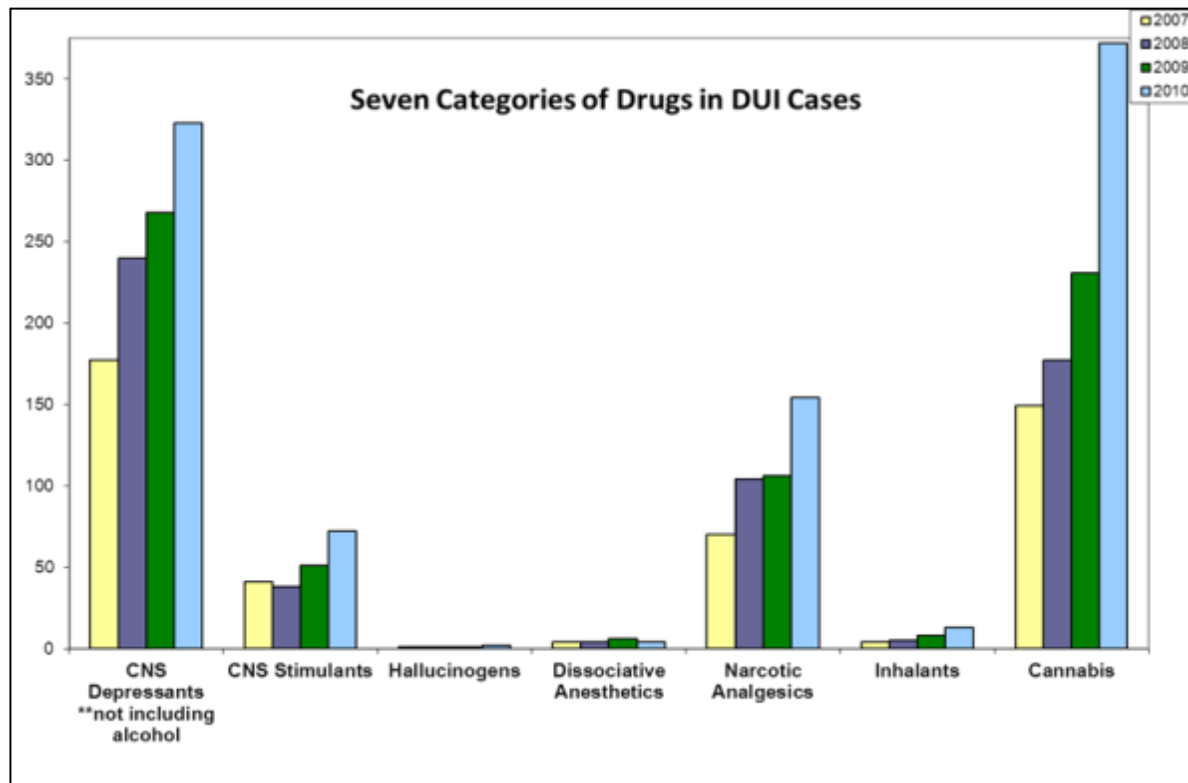
Never drink or use drugs before driving



If impaired, how would you react when the unexpected happens?

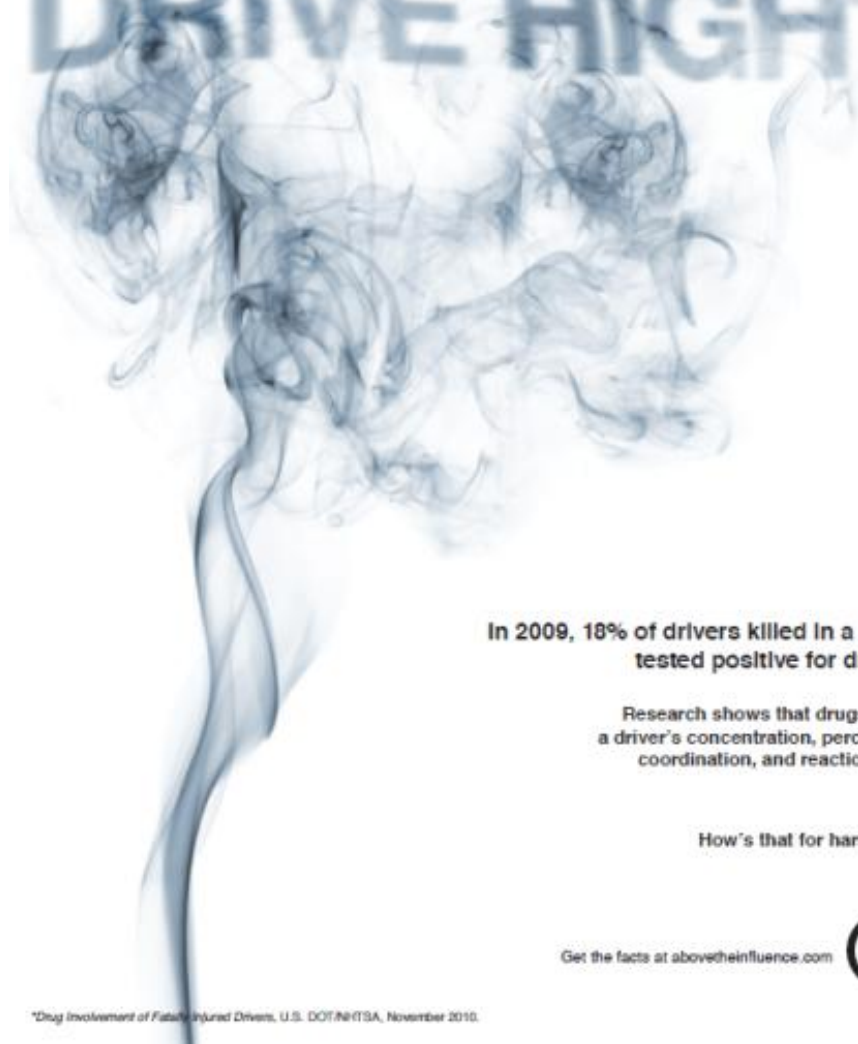
Montana DUI Fatal Crashes

An analysis of Montana fatal vehicle crashes in 2010 revealed that:
38% had drugs involved (up from 32% in 2009)
33% had alcohol involved (down from 36% in 2009)
14% had a mixture of drugs and alcohol involved (same as 2009)



Think it's harmless to

DRIVE HIGH?



**In 2009, 18% of drivers killed in a crash
tested positive for drugs.***

Research shows that drugs affect
a driver's concentration, perception,
coordination, and reaction time.

How's that for harmless?

Get the facts at abovetheinfluence.com



*Drug Involvement of Fatally Injured Drivers, U.S. DOT/NHTSA, November 2010.

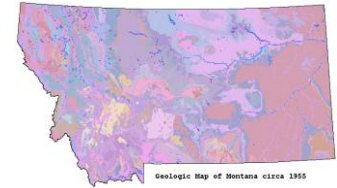
OTHER DRUGS: Marijuana

Marijuana is a green, brown, or gray mixture of dried, shredded flowers and leaves of the hemp plant (*Cannabis sativa*)



Research shows that drivers on marijuana have slower reaction times, impaired judgment, and problems responding to signals and sounds. DUI consequences apply.

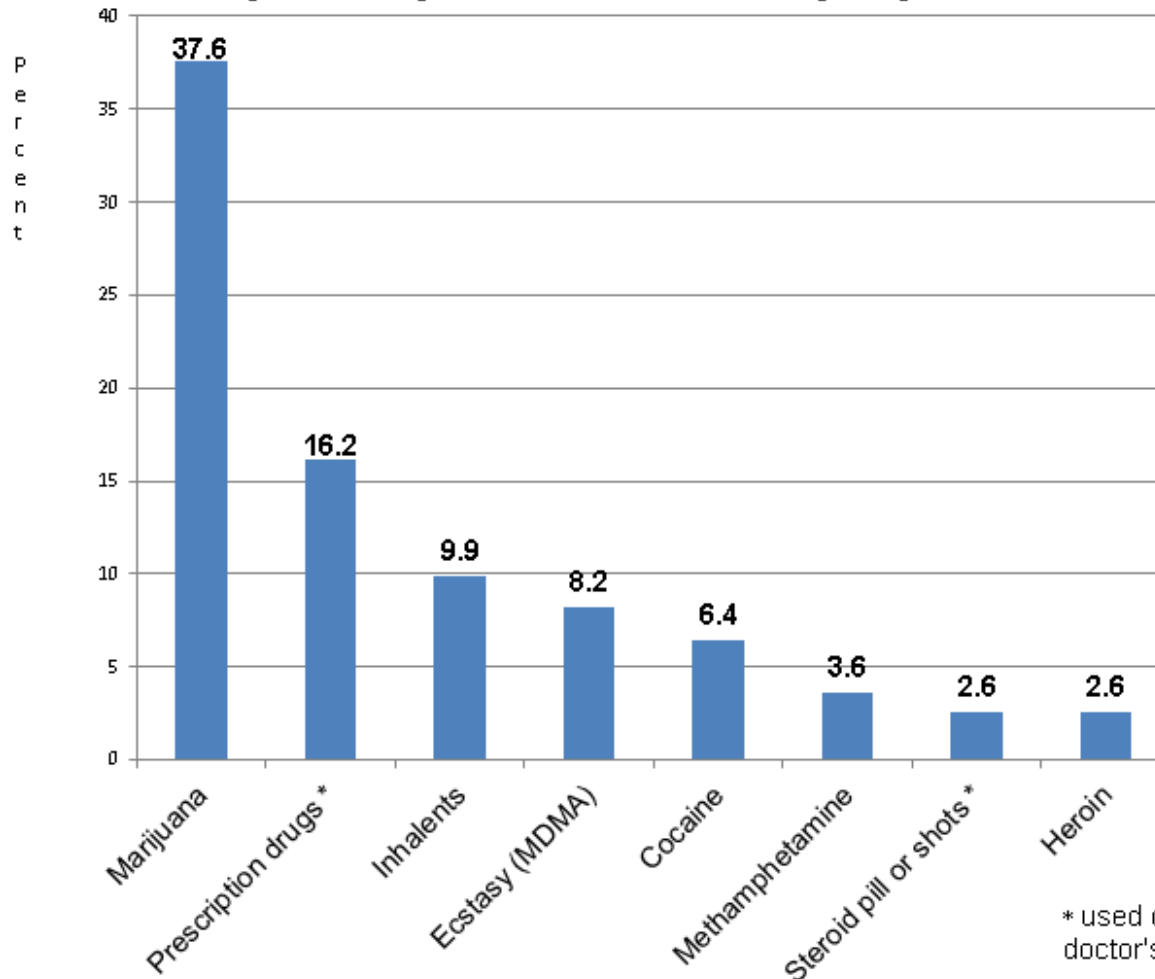
Montana Commonly Abused Drugs



**After Alcohol, Marijuana and Prescription Medications
account for Most of the Commonly Abused Drugs**

2013 Montana Youth Risk Behavior Survey

Percentage of Montana high school students who used these drugs during their life.....



How can prescription drugs be harmful when they are prescribed by doctors?

Medicines such as codeine and benzodiazepines (sleeping pills, tranquilizers, and anti-anxiety medications) can result in:

- absent-mindedness
- poor coordination and judgment
- reduced ability to control the vehicle



Drug Overdose



Between 2000 and 2009 there was a 91% increase in the poisoning death rate for 15 – 19 year olds, largely due to prescription drug overdoses.

CDC Vital Signs reports

Over-the-counter drugs (OTC)

Examples of OTC drugs include

- Aspirin or other pain relievers.
- Cold and allergy remedies.
- Arthritis and back pain medication.



Physical effects of OTC drugs

- Drowsiness, dizziness, slowed reaction times, poor judgment.
- Always read the labels and know the effects that could occur.

At a party, a friend offers you alcohol and a pill. What would you do and why?



Inhalants



- Inhalant vapors displace oxygen in the lungs.
- Solvents or aerosol sprays can cause irregular or rapid heart rhythms and can lead to heart failure and death within minutes.
- This "sudden sniffing death" is particularly associated with the abuse of butane, propane, and chemicals in aerosols.
- While high on inhalants, people also can die by suffocation, choking on their own vomit or by fatal injury from accidents, including car crashes.

OTHER DRUGS: MDMA or Ecstasy

3,4-methylenedioxymethamphetamine



- MDMA is chemically similar to stimulants and hallucinogens and can make a person feel energized and generate a sense of well-being.
- It can also interfere with the body's ability to regulate temperature, leading to hyperthermia (increased body temperature) and dehydration which can cause heart and kidney failure.
- MDMA can also impair memory and generate depression for several days after taking it.

OTHER DRUGS: Cocaine

- Cocaine is a white powder that comes from the leaves of the South American coca plant
- Highly addictive central nervous system stimulant increases risk of heart attacks, respiratory failure, strokes and seizures
- Crack is a form of cocaine that has been chemically altered so that it can be smoked
- Cocaine is the powdered form of the drug, usually sniffed up the nose, but sometimes diluted and injected into a vein.



OTHER DRUGS: Methamphetamine

Commonly known as:



- **Meth**
- **Speed**
- **Chalk**
- **Crystal**
- **Crank**
- **Glass**
- **Ice**

Short-term effects:

Dizziness
Twitching
Tremors
Itchy skin
Constipation
Dry mouth
Restlessness
Irritability
Violence
Obsessive compulsive behavior
Hallucinations
Skin deterioration
Open sores on the skin often caused by compulsive scratching

Long-term effects:

Heart disease
Psychosis
Anxiety
Brain damage
Impaired memory
Impaired attention

DID YOU KNOW?



- Alcohol is a depressant, or downer, because it reduces brain activity. If you are depressed before you start drinking, alcohol can make you feel worse.
- Repeated drug use can reset the brain's pleasure meter, so that without the drug, you feel hopeless and sad.
- Eventually, everyday fun stuff like spending time with friends or playing with your dog doesn't make you happy anymore.

You can prevent a tragedy ...



How would you convince a friend impaired by alcohol or other drugs to not drive and to give you the keys?

What are some ways to make smarter choices?



What choice will you make?



<http://teens.drugabuse.gov/peerx/>

Most Montana teens – 89.4% –
don't drink and drive



What else can you do to stay safe on the road?

Research Sources:

- Montana: YRBS and MDT <http://www.mdt.mt.gov/safety/safety->
- Plan2Live <http://www.plan2live.mt.gov/mythcrashers.shtml>
- initiatives/drugs-alcohol.shtml
- *1 Road Safety: Alcohol and Drink Driving*. Adelaide, Department of Transport, Energy and Infrastructure, Government of South Australia. (www.dtei.sa.gov.au/roadsafety/Safer_behaviours/alcohol_drink_driving)
- NIDA 2011 Drug Facts Shatter the Myths - <http://teens.drugabuse.gov/>
- <http://www.alcoholscreening.org/Learn-More.aspx?topicID=8&articleID=25>
- Centers for Disease Control. “Vital Signs: Alcohol-Impaired Driving Among Adults — United States, 2010.” Morbidity and Mortality Weekly Report. October 4, 2011. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6039a4.htm>

Montana Driver Education and Training Standards and Benchmarks

1. Laws and Highway System

- 1.1. know the laws outlined in the Montana Driver's manual;
- 1.2. understand the laws outlined in the Montana Driver's Manual; and
- 1.3. consistently demonstrate knowledge and understanding by responsible adherence to highway transportation system traffic laws and control devices.

2. Responsibility

- 2.1. recognize the importance of making safe and responsible decisions for owning and operating a motor vehicle;
- 2.2. demonstrate the ability to make appropriate decisions while operating a motor vehicle;
- 2.3. consistently display respect for other users of the highway transportation system; and
- 2.4. develop positive habits and attitudes for responsible driving.

3. Visual Skills

- 3.1. know proper visual skills for operating a motor vehicle;
- 3.2. communicate and explain proper visual skills for operating a motor vehicle;
- 3.3. demonstrate the use of proper visual skills for operating a motor vehicle; and
- 3.4. develop habits and attitudes with regard to proper visual skills.

4. Vehicle Control

- 4.1. demonstrate smooth, safe and efficient operation of a motor vehicle; and
- 4.2. develop positive habits and attitudes relative to safe, efficient and smooth vehicle operation.

(continued on next slide)

Montana Driver Education and Training Standards and Benchmarks

5. Communication

- 5.1. consistently communicate driving intentions (i.e., use of lights, vehicle position, and personal signals);
- 5.2. adjust driver behavior based on observation of the highway transportation system and other roadway users;
- 5.3. adjust communication (i.e., use of lights, vehicle position, and personal signals) based on observation of the highway transportation system and other users; and
- 5.4. develop positive habits and attitudes for effective communication.

6. Risk Management

- 6.1. understand driver risk-management principles;
- 6.2. demonstrate driver risk-management strategies; and
- 6.3. develop positive habits and attitudes for effective driver risk-management.

7. Lifelong Learning

- 7.1. identify and use a range of learning strategies required to acquire or retain knowledge, positive driving habits, and driving skills for lifelong learning;
- 7.2. establish learning goals that are based on an understanding of one's own current and future learning needs; and
- 7.3. demonstrate knowledge and ability to make informed decisions required for positive driving habits, effective performance, and adaptation to change.

8. Driving Experience

- 8.1. acquire at least the minimum number of BTW hours over at least the minimum number of days, as required by law, with a Montana-approved driver education teacher; and
- 8.2. acquire additional behind-the-wheel driving experience with a parent or guardian's assistance in a variety of driving situations (i.e., night, adverse weather, gravel road, etc.).